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EXAMINER

DILLER, JESSE DAVID

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/677,979

Applicant(s)

COX ET AL.

Examiner

Jesse Diller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 96-141 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 96-106, 108, 110-120, 122, 124-134, 136 and 138-140 is/are rejected.
- 7) ☒ Claim(s) 107, 109, 121, 123, 135 and 137 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>04/21/06</u>  | 6) <input type="checkbox"/> Other: _____                                    |

***Response to Amendment***

1. Examiner acknowledges receipt of the amendment in response to the office action dated 04/05/2006, which amendment was received 06/10/2006. At this point, claims 1-95 have been cancelled, and claims 96-141 have been added. Thus, claims 96-141 are now pending in the application.

**Claim Rejections – 35 USC § 112 and 102**

2. In response to their cancellation, the 35 USC § 103 rejections of claims 47, 64, 77, and 90 are withdrawn.

**Response to Arguments**

3. Applicant's arguments filed with respect to the 35 USC § 103 rejections of claims 47, 64, 77, and 90 by Mantha and Ganger are moot in view of their cancellation and the new rejection which follows.

## DETAILED ACTION

### *Information Disclosure Statement*

4. The IDS filed 04/27/2006 has been considered by the Examiner. An initialed and dated copy of the PTO-1449 is included herewith.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 96, 110, 124, 138, 98-99, 112-113, and 126-127 are rejected under 35 U.S.C. 102(e) as being unpatentable over Li et al., US 6,854,018.**

6. **As for claim 96, Li teaches** a server for storing Web objects on a storage device, comprising:

- a processor and one or more stored sequences of instructions which, when executed by the processor, cause the processor to perform the steps of (see 28, Fig. 3; also Claim 1; the server is programmed to perform method steps; executing programming steps requires a processor and instruction sequences to enable the steps):

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- receiving, at a server from a first client device, a first request for a first Web object (Fig. 7b: Open Connection is initial request);
- in response to the first request, the server obtaining the first Web object and a second Web object and the server sending to the first client device the first Web object and the second Web object (Fig. 7b; OBJ1, OBJ2, etc. see also Col. 2, lines 19-20, 29-31 and Col. 9, lines 13-20);
- the server identifying that the second Web object is embedded within the first Web object (Col. 10, line 35 - Col. 11, line 15);
- the server causing the first Web object to be stored as a first file in a first location on the storage device and causing the second Web object to be stored as a second file in a second location on the storage device (Col. 11, lines 20-35), wherein the second location is selected to be co-located with respect to the first location in response to identifying that the second Web object is embedded within the first Web object (Col. 11, lines 5-14, 25-35);
- receiving, at the server from a second client device (i.e., 90, Fig. 2), a second request for the first Web object and in response to the second request, the server obtaining the first Web object by causing the first file to be read from the storage device in a first read operation, obtaining the second Web object by causing the second file to be read from the storage device in a second read operation, and sending to the second client device the first Web object and the second Web object (Col. 2, lines 15-18, 24-28; Col. 11, lines 30-35; subsequent requests are supplied from the cache).

7. **As for Claim 110**, it is a means+function version of claim 96, invoking 35 USC § 112 6<sup>th</sup> par by its language. In this case, the disclosed means for performing the claimed function is the server's processor executing instructions. Col. 7, lines 50-55, Col. 8, lines 13-20 indicate that the system of Li is a computer server running a communications program on a CPU. Therefore, the means disclosed by Li are the same as those of the instant application, and therefore claim 110 is rejected on the same grounds as claim 96.

8. **As for claim 124**, it is a version of claim 96 which recites: *"A computer-readable storage medium carrying one or more sequences of instructions for storing Web objects in co-located positions on a storage device, which instructions, when executed by one or more processors, cause the one or more processors to perform the steps of:"* The method steps which follow are identical to those of claim 96. Col. 7, lines 50-55, Col. 8, lines 13-20 indicate that the system of Li is a computer server running a communications program on a CPU. In such a system, the communications program must inherently be stored on a computer-readable storage medium. Therefore, claim 124 is rejected on the same grounds as claim 96.

9. **As for claim 138**, it is a method version of claim 96, performing the steps claimed in claim 96 without reciting the enabling hardware. Li performs the method of claim 96, as recited above. Therefore, claim 138 is rejected on the same grounds as claim 96.

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10. **As for Claims 98, 112, and 126, Li teaches** the limitations of independent claims 96, 110, 124, and 138 as above, and further teaches:

- the storage device (30, Fig. 2); and wherein
- the server is selected from the group consisting of a Web caching server, a Web caching proxy, a Web content server, and a Web origin server (Col. 8, line 65 – Col. 9, line 4).

11. **As for Claims 99, 113, and 127, Li teaches** the limitations of independent claims 96, 110, 124, and 138 as above, and further teaches:

- the first Web object is a Web page; the second Web object is a component of the Web page associated with a file type that is selected from the group consisting of a text file type, an image file type, an audio file type, and a video file type (Col. 2, lines 20-24); and
- the Web page and the component of the Web page have correlated retrieval times as a result of the component of the Web page being embedded within the Web page (Fig. 7b).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 100, 114, 128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li.**

13. **As for Claims 100, 114, and 128, Li teaches** the limitations of independent claims 96, 110, 124, and 138 as above, and further teaches:

- the first Web object is a Web page (68, Fig. 9);
- the Web page includes a hyper-link to the second Web object (72, Fig. 9b);

14. Li does not expressly disclose

- the Web page and the second Web object have correlated retrieval times as a result of the Web page including the hyper-link to second Web object (74, Fig. 9b). Li teaches that, in preferred embodiments, the channels to the hyperlinked object is opened, but the object is not prefetched at that time to save bandwidth (Col. 9, lines 55-60).

15. However, at the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the system of Li to actually prefetch the hyperlinked objects.

16. The motivation for doing so is the same as the motivation to perform embedded object prefetches. Li notes that preemptively opening channels to embedded and hyperlinked objects as well as preemptively fetching embedded objects reduce the response time to the client (Col. 9, lines 58-60; Col. 2, lines 25-30). This is the well-known benefit of both prefetching and caching. If data is held in a low-latency store as opposed to a high-latency store, response time is lowered. Therefore, if data is prefetched into the low-latency store, response time is again lowered when the data is



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subsequently requested. One of ordinary skill in the art would reason that if it is helpful to prefetch embedded documents which will be viewed immediately, it would be similarly beneficial to prefetch hyperlinked documents which may be viewed soon. Similar reasoning is used in many computer-related disciplines. For instance, in processors, speculative prefetches are common, preloading instructions and data which may or may not be used. When playing streaming media, for instance in CD/DVD players, read-ahead buffers prefetch data that may or may not be displayed.

17. While Li teaches that in preferred embodiments, the channels to the hyperlinked object is opened, but the object is not prefetched at that time to save bandwidth (Col. 9, lines 55-60), in applications where bandwidth is not an issue such a modification would be obvious. Many systems utilize times of low resource utilization to perform tasks. Many data backup systems utilize change logs and only commit the changes when network utilization is low. Processors prioritize program threads, and only run low-priority threads when CPU time is available. Other examples abound.

18. Therefore, it would have been obvious to combine the benefits of prefetching data with the system of Li, for the benefit of increased responsiveness, to obtain the invention as specified in claims 100, 114, and 128.

19. **Claims 101-102, 115-116, 129-130 rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Renshaw, US 6,065,024.**

20. **As for Claims 101, 115, and 129, Li teaches** the limitations of independent claims 96, 110, 124, and 138 as above, and further teaches:

- the first Web object is a Web page; the second Web object is an object embedded in the Web page (Col. 5, lines 40-44); and
- the Web page and the component of the Web page have correlated retrieval times as a result of the component of the Web page being embedded within the Web page (Fig. 7b).

21. Li does not expressly disclose that the embedded component of the page is a second web page.

22. **Renshaw discloses** a system and method for providing support for embedded web pages. In this system, the embedded web page is made to appear, via Java applets, as simply another embedded object and is downloaded with the rest of the web page.

23. Renshaw and Li are analogous art because they are from the same area of endeavor, namely web prefetching systems.

24. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate Renshaw's embedded webpage method in the system of Li.

25. The motivation for doing so is that this would add support for embedded web pages to the system of Li, as noted by Renshaw on Col. 2, lines 1-25.

26. Therefore, it would have been obvious to combine Li with Renshaw for the benefit of supporting multilayered webpages, to obtain the invention as specified in claims 101, 115, and 129.

27. **As for claims 102, 116, and 130, Li teaches** the limitations of independent claims 96, 110, 124, and 138 as above, and further teaches:

- the first Web object is a Web page; the second Web object is an object embedded in the Web page (Col. 5, lines 40-44); and
- the Web page and the component of the Web page have correlated retrieval times as a result of the component of the Web page being embedded within the Web page (Fig. 7b).

28. Li does not expressly disclose that:

- the embedded component of the page is a second web page,
- the server identifying that a third Web page is embedded within the second Web page;
- the server obtaining the third Web page; and
- the server causing the third Web page to be stored as a third file in a third location on the storage device, wherein the third location is selected to be co-located with respect to the second location because the third Web page is embedded within the second Web page.

29. **Renshaw discloses** a system and method for providing support for embedded web pages. In this system, the embedded web page is made to appear, via Java applets, as simply another embedded object and is downloaded with the rest of the web page. Renshaw further teaches that his system of parsing embedded web pages can extend to additional embedded web pages. See Fig. 3. In the system of Renshaw, embedded pages are stored as separate files (210,215, Fig. 2) co-located in a data store (205, Fig. 2). Therefore, the modification would include the server causing the third Web page to be stored as a third file in a third location on the storage device,

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wherein the third location is selected to be co-located with respect to the second location because the third Web page is embedded within the second Web page.

30. Renshaw and Li are analogous art because they are from the same area of endeavor, namely web prefetching systems.

31. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate Renshaw's embedded webpage method in the system of Li, so that the embedded pages are fetched with other embedded objects.

32. The motivation for doing so is that this would add support for embedded web pages to the system of Li, as noted by Renshaw on Col. 2, lines 1-25.

33. Therefore, it would have been obvious to combine Li with Renshaw for the benefit of supporting multilayered webpages, to obtain the invention as specified in claims 102, 116, and 130.

34. **Claims 97, 111, and 125 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Ganger et al., "Embedded Inodes and Explicit Grouping: Exploiting Disk Bandwidth for Small Files – 1997", hereinafter Ganger.**

35. **Li teaches** the limitations of independent claims 96, 110, 124, and 138 as above, but does not expressly teach the claimed co-location relationships. The objects are co-located in a cache, but Li does not require the objects to be more close co-located.

36. **Ganger teaches** a method of storing objects having correlated retrieval times in co-located positions on a disk drive (see figure 1; page 1: Abstract; and page 3: lines 32-52 of column 1 of Ganger).

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37. It would have been obvious to one having an ordinary level of skill in the art at the time the invention was made to include, in the system and method of Li, a step of storing the Web page and the Web Objects in co-located positions on a storage device, where the relationships include same cylinder group (page 1, right Col., par. 2, line 4), adjacent sectors (Page 2, left Col, lines 32-34), near cylinder (page 3, right Col., Par. 4, first 3 lines).

38. This would have been obvious since Ganger clearly teaches that storing objects having correlated retrieval times in co-located positions on the disk drive reduces disk access time and improves performance (see page 4: lines 53-54 of column 2; page 5: columns 1-2; page 6: lines 1-15 of column 1; and page 11: 14-22 of Ganger).

39. Therefore, it would have been obvious to combine Li with Ganger for the benefit of performance increases, to obtain the invention as specified in claims 97, 111, and 125.

40. **Claims 103-105, 117-119, 131-133, 139-141 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Jaeger, US 6345028.**

41. **As for claims 103, 117, and 131, Li teaches** the limitations of independent claims 96, 110, 124, and 138 as above, but does not expressly disclose:

- the server causing the first Web object to be stored in a first temporary location; and the server causing the first Web object to be moved from the first temporary location to the first storage location; and

- the server causing the second Web object to be stored in a second temporary location; and the server causing the second Web object to be moved from the second temporary location to the second storage location.

42. Jaeger discloses a system and method for receiving and storing related data in co-located locations. The system includes a storage device (11', Fig. 1) and a temporary storage device (11, Fig. 1), each including multiple storage locations (12, 12', Fig. 1). Data which is received is initially stored in temporary storage device 11 (Col. 5, lines 28-40) in temporary storage locations, which are not co-located. Later, these files are moved to storage device 11', and in doing so are rearranged so as to be co-located.

43. Jaeger and Li are analogous art because they are from the same problem-solving area, namely systems which attempt to increase the speed of data access. The system of Li increases the speed of access to data from the Internet, while Jaeger increases the speed of access to related files stored on a hard disk.

44. At the time of the invention it would have been obvious to a person of ordinary skill in the art to utilize the system of Jaeger in the system of Li, to allow the related web objects to be temporarily cached and then moved to co-located positions in a hard disk.

45. The motivation for doing so is taught in Jaeger, Col. 5, lines 40-45, namely that when multiple files are required to be read from the disk, lack of co-location slows their access. The co-location allows for faster access to multiple co-located files.

46. Therefore, it would have been obvious to combine Jaeger with Li for the benefit of increased access speed, to obtain the invention as specified in claims **103, 117, and 131, and 139.**

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47. **As for claims 104, 118, 132, and 140, Jaeger further teaches that the** temporary locations are within a memory (Col. 5, lines 10-20).

48. **As for claims 105, 119, 133, and 141, Jaeger further teaches that the** temporary locations are within the storage device (Col. 6, lines 12-15).

49. **As for claims 106, 108, 120, 122, 134, 136, Li teaches the limitations of** independent claims 96, 110, 124, and 138 as above, but does not expressly disclose:

- the server causing the first Web object to be stored in a first temporary location; and the server causing the first Web object to be moved from the first temporary location to the first storage location; and
- the server causing the second Web object to be stored in a second temporary location; and the server causing the second Web object to be moved from the second temporary location to the second storage location;
- wherein the temporary locations are within a portion of memory, and the moving is performed when a criterion is satisfied.

50. Jaeger discloses a system and method for receiving and storing related data in co-located locations. The system includes a storage device (11', Fig. 1) and a memory(31, Fig. 5, corresponding structure in Fig. 1), each including multiple storage locations (12', Frames, Fig. 1). Data which is received is initially stored in temporary storage device (31, Fig. 5) in temporary storage locations. Later, these files are moved to storage device 11', and in doing so are rearranged so as to be co-located. The criterion for moving them is when the memory buffer 31 is full.

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51. Jaeger and Li are analogous art because they are from the same problem-solving area, namely systems which attempt to increase the speed of data access. The system of Li increases the speed of access to data from the Internet, while Jaeger increases the speed of access to related files stored on a hard disk.

52. At the time of the invention it would have been obvious to a person of ordinary skill in the art to utilize the system of Jaeger in the system of Li, to allow the related web objects to be temporarily cached in a memory buffer as they are received, and then moved to co-located positions in a hard disk.

53. The motivation for doing so is taught in Jaeger, Col. 5, lines 40-45, namely that when multiple files are required to be read from the disk, lack of co-location slows their access. The co-location allows for faster access to multiple co-located files. The use of the temporary memory buffer allows the co-located data to be assembled into segments which can be quickly written onto the disk.

54. Therefore, it would have been obvious to combine Jaeger with Li for the benefit of increased access speed, to obtain the invention as specified in claims 106, 108, 120, 122, 134, and 136.



***Allowable Subject Matter***

Claims 107, 109, 121, 123, 135, 137 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

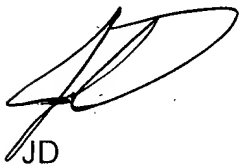
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse Diller whose telephone number is (571) 272-4173. The examiner can normally be reached on 9:30AM-6:00PM.

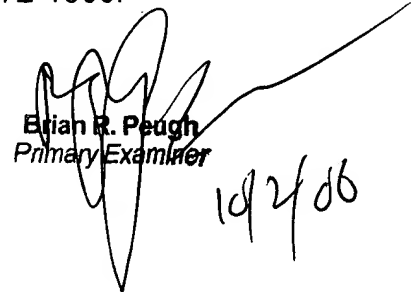
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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JD



Brian R. Peugh  
Primary Examiner  
10/2/06